Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

# ADDITIONAL NOTES ON CERTAIN SPECIES OF ROTIFERA.

BY D. S. KELLICOTT, Ph.D., Buffalo, N. Y.

"*Floscularia* (*Stephanoceros*) *Millsii.*" At the Cleveland meeting of the Society (1885) I read an account of this remarkable floscule; my notes were printed in the Proceedings of that meeting at page 48 and following. Mr. P. H. Gosse, on receiving the reprint of the article, very kindly wrote to me concerning it, and in the course of his note says, "I rather suspect you will find it to be only *Stephanoceros Eichhornii* after all; even if the setæ are not 'arranged in whorls,' yet the whole form is that of *Stephanoceros*, far more than of *Floscularia*." I know it is presumptuous for me to publish an opinion relating to these animals contrary to so distinguished a naturalist, and, if Mr. Gosse had seen the rotiferon in question, rather than my imperfect drawing, I would not do so; but he has not, and it can scarcely be sent for examination alive, whilst mounted specimens are unsatifactory, therefore, I venture to restate the case as I understand it, and this after again examining the animal with the above warning before me. After I have done so I must leave it for others to decide whether or not the floscule is a distinct species, and what are its genetic affinities. Before the preparation of the original article I was aware that its "form was that of *Stephanoceros* far more than that of *Floscularia*." The *long* frontal lobes assimilates it to the former genus, while the diagnosis of the latter, as it now stands, has "frontal lobes *short*"; again its setæ are arranged like those of *Floscularia* and not as stated for *Stephanoceros*, viz.: "set diagonally on the lobes in parallel bands." These incongruities I pointed out more or less clearly and at the same time designated enough differences, as I then thought — and I am of the same opinion still — to separate it from *Eichhornii*; this I must insist upon.

These differences I will now restate. I find on comparing the floscule in question with *Eichhornii* — using living specimens of both and the drawings by authors of the latter — that: 1, *Millsii* is not so stout as *Eichhornii* with the frontal lobes slenderer and relatively longer; 2, the lobes are clothed with setæ which are not set in oblique parallel bands as they are conspicuously in *Eichhornii*; 3, the setæ are never seen to vibrate like those of the last mentioned species, i. e., "The instant this happens (captured prey attempting to escape) band after band of the setæ lashes at the runaway, a swift wave of motion runs along each band, and the captive is thrown back into the vortex produced by the wreath at the bottom of the coronal cup;" not so, but the non-vibratile setæ simply reach out from each lobe to interlace with those from the adjacent lobes in a fashion similar to several species of *Floscularia;* 4, the setæ, the reverse of *Eichhornii*, increase toward the extremities of the lobes, each of which is terminated by a brush or tuft of long radiating bristles, equal to half the length or more of the arms when fully extended; 5, the tube is not firm and lobed like that of *Eichhornii*, but is of slight consistency and more irregular in outline, similar to those of representatives of *Floscularia*.

In view of these unquestionable differences I can not conclude otherwise than that the two are distinct and that our rotiferon is a good species, for it certainly cannot be any one of the numerous examples of *Floscularia*.

Is our species then a member of *Floscularia* or of *Stephanoceros?* It stands like this: the setæ and tube are those of the former: the frontal lobes those of the latter. The foot is contracted to an exceedingly short, neck-like pedicel or what I mentioned in the original paper as a very short pedicel. After removing several from their cases and examining with higher powers and under more favorable conditions, I cannot regard it otherwise than as a true pedicel. Still, I admit it may be interpreted otherwise; yet it is no more problematical than in certain of the *Floscularia* which are not uncertainly classified. In one young example I could find no trace of a constriction. The very long attenuate frontal lobes then alone remain as a genuine character peculiar to *Stephanoceros*, but this is a strong structural character, while the mere set of the setæ is rather a specific than a generic feature, and the foot termination does not vary more from *Eichhornii* than those of *Floscularia* vary among themselves, hence, perhaps less violence will be done to strict generic arrangement to regard this as *Stephanoceros Millsii* than as *Floscularia Millsii*, as it belongs to neither without modification of their limits, and yet is too closely allied to be separated generically, it seems best to change the diagnosis of one to admit it and I suggest that the clause relating to setæ in the characters of *Stephanoceros* shall be dropped, and instead of "setæ set diagonally on the lobes in parallel bands," it shall read "Setæ throughout the lobes, very long and radiating or set in oblique parallel bands." With this emendation the species should be known as *Stephanoceros Millsii.*

The female eggs are often seen in the tube, several at a time. The dimensions just before hatching are as follows: length $\frac{1}{300}$ of an inch, width $\frac{1}{500}$ of an inch. Just before the young leaves the egg, the two eyes are very conspicuous. The animal is far more abundant than *Eichhornii* in the two streams in which it has been found, namely, Black Creek, Canada, flowing into the Niagara opposite Grand Island, and a small sluggish, stream filled with water lilies, bladderworts and the like, on the eastern side of Grand Island and known locally as "Nigger" Creek. It is, in fact, as numerous in in these places as *Floscularia campanulata*. *F. ornata* and *F. cornuta* are also its companions.

[Examples of *Eichhornii* and *Millsii* were exhibited, side by side, to many members of the Society at Pittsburgh, and all conceded the distinction of the latter. D. S. K.]

*Brachionus conium*, Atwood. This rotiferon was described by Mr. H. F. Atwood in the *American Monthly Microscopical Journal*, Vol. II., 102 (1881). It was discovered in the water-supply of Rochester, N. Y.; the water is derived from Hemlock Lake. I have recently identified it from a sluggish creek on Grand Island, Niagara River, and from a small pond filled with algæ at the "Front," Buffalo City Park, where it occurs in some abundance. This has enabled me to study it and make comparisons with its congeners. This note is offered with the hope that it may help to bring this distinct and notable species to the attention and acquaintance of our observers. I wish also to record one or two points not mentioned by the describer, and to raise a question as to its generic relations.

Of the ten frontal spines the middle two on the upper edge are much longer than the others and bent down over the front with their apices turned outwards. Mr. Atwood found but one of these spines thus. The middle posterior spines are situated on a roof-like piece projecting over the posterior aperture ot the lorica, and, since its back edge is twisted or set obliquely, the spines are not in a plane parallel with the ventral plate, one turns upwards and the other downwards. It is not unusual to meet with an example with three eggs occupying each one of the three spaces between the four posterior spines. The species is a powerful swimmer and usually goes boring its way and it appears to prefer rotation in one direction, i. e., right handed spirals. It would seem that the twist of the posterior edge is intended to assist this cork-screw motion forwards.

I do not find the surface "reticulated," but set with minute raised points, giving it a stippled appearance under a moderate power. The long dorsal antenna projects from between the longest frontal spines; the ciliated head-lobes and styles appear to be typical of its family. I can discover but one peculiarity: on the lower edge of the lateral lobes there is a sub-lobe which projects downward between the two outer spines of the anterior edge of the ventral plate.

The female eggs are of the usual shape, smooth, $\frac{1}{230}$ of an inch in length, and the young, before hatching, exhibit well formed trophi and well ciliated frontal lobes; the frontal spines of the carapace are well seen, so the young must leave the egg looking very much like the adult except in size.

Is this species one of the genus, *Brachionus?* Its foot is not wrinkled as in that genus but three jointed, the first articulation is distinct, the second obscure. In this regard it agrees very well with the second genus of the family Brachionidæ, viz: *Noteus*; again it has a conspicuous eye spot, the latter genus has none, nor is the lorica faceted as the one species is which gives the characters for the genus *Noteus.*

On the whole it seems to me that this rotiferon would better be considered as the second species of *Noteus*, for the pronounced characters of the foot surely separate it from *Brachionus*, while this character and the roughened, dorsally gibbous lorica ally it to the former. The fact that the shell is not faceted ought not, it seems, to separate genera and possibly *Noteus quadricornis* may yet prove to possess, at some stage, an eye.

We must expect some discrepencies as the knowledge of our Rotifera increases. The present arrangement into genera, etc., is based on the species of a limited area—practically Europe, and is not entirely satisfactory for what are now known. Even the species already referred to above viz: *N. quadricornis* does not quite agree with the family Brachionidæ as described, for example, in *The Rotifera* by Prof. Hudson and Mr. Gosse Vol, II., p. 116, we read in the diagnosis of Family XVIII., " Foot long, excessively flexible, wholly retractile, wrinkled, ending in two toes." Describing the second genus, *Noteus*, of this family it is put thus: " foot obscurely jointed," etc., whilst by turning to Plate XVIII., Fig. 5, of the same work, *N. quadricornis* is represented with a foot having as decided joints as are often found in any species of the Rotifera.

*Pterodina patina.* Prof. Hudson says of the Pterodinadæ (*Rotifera*, p. 36): "They are almost always creeping about the algæ on the sides of the pond. I never but once have seen any other than solitary specimens. I then found swarms of them in the small space in which the sluice gate of a pond worked." This remark suggested to me that it would not be amiss to state how I have invariably succeeded in getting any number of *P. patina* in the winter. At the head of Squaw Island there is a deep bay of the Niagara which is covered in winter by thick ice; through this fishermen cut holes in order to take minnows for bait; they often bring up with their nets *Anacharis alcinastrum.* This water weed I remove to glass jars in my library, and in a short time have a wonderful crop of Infusoria and Rotifera. The species named usually occurring in swarms.

*Asplanchina priodonta.* I have recently taken countless numbers of this lovely form by using a skimming net on the lake in Buffalo City Park. As found here it differs markedly in shape from the representations in Hudson's Rotifera inasmuch as it is relatively longer, and has a more decided "neck," i.e. it is more truly flask shaped.

*Cephalosiphon limnias.* I was somewhat surprised to find, on examining the work on Rotifera, already referred to, that this species is comparatively rare in Europe, and, as said, "very partially distributed." I have often found it at Buffalo and in the Shiawassee River, Michigan, it is positively a common and abundant species. It ordinarily occurs on *Myriophyllum* along with *Melicerta ringens* and *Limnias ceratophylli.*